

REMARKS/ARGUMENTS/AND APPLICANT'S INTERVIEW SUMMARY

An interview was conducted January 11, 2005 at which time the Examiner seemed to indicate after review of this proposed amendment that all claims should be allowable in an RCE which is necessary to fully consider the amendments herein. No commitment was made as to patentability of the claims.

In the Office Action claim 4 (the Office Action said claim 5, but it is presumed that the Examiner meant claim 4 because claim 5 was canceled) was rejected under 35 USC 103 as unpatentable over Sporck (US 3,120,206) in view of Isokawa (US 5,279,688) and further in view of Walker (US 3,699,636) for the reasons set forth in the Office Action.

By this amendment the subject matter of Claim 4, as amended, now includes further details for clarifying the distinction between the invention and the teachings of the cited art. New claim 6 is similar to amended claim 4 but includes additional clarifying language to distinguish the present invention from the teachings of the cited art, particularly the teachings of Sporck. The claims are believed to be allowable in view of the following argument.

The feature of the present divisional application, as shown in Fig. 8, is that a steel pipe 19 is clamped at both ends thereof by a movable die (upper die) 17 and a fixed die (lower die) 18 with pressing the steel pipe 19 from an outside thereof toward a mandrel 20, so that a shear spinning treatment is performed on an outer periphery surface of the steel pipe 19 to reduce an outside diameter thereof and form a hollow shaft member B. The edge

portion corresponding to the lower die 18 of the hollow shaft member is configured to contact with a shoulder 18a thereof, so that the flange portion can be formed with low cost and rigidity.

Although the cited reference, Sporck discloses the shear spinning treatment, his spinning method is different from that of the present invention. That is, the method of the present invention is to clamp the steel pipe in a vertical direction by the movable die and the fixed die, and then to press the steel pipe from a lateral direction by the spinning treatment. In contrast, Sporck performs only the spinning treatment, which is just a forming method for stretching any thin layer of material (see Figs. 7, 8 and 15). In other words, the object of Sporck has a thickness which is changed by the spinning treatment, but that of the present application is not changed since both the dies have the shoulders 17a, 18a.

Another feature of the present invention is that the fixed die 18 as placed under the movable die 17 has a lower recess 18a which has the same inside diameter as that of the upper recess 17a. This point also is not disclosed in all the cited references.

In addition, as mentioned in the original specification, pages 13-15, the content of Si and Mn in the present application is much less than the usual case, so that a ductility thereof can be improved to obtain an improved plastic workability. Furthermore, a heat treatment characteristic can be remarkably improved since the present invention adds 0.001-0.1wt% of B and 0.01-0.1wt% of

Ti or Nb. No cited references disclose the above-mentioned features.

Thus, it is believed that the present amendment and argument overcome the rejection under 35 USC 103 so as to obtain allowable subject matter.

It is intended to conduct an interview based on the present claims 4 and 6 to determine the possible presence of allowable subject matter.

Since the above-mentioned ranges of various components contained in the steel materials used in the present invention are neither disclosed nor inherently taught by any of the cited prior art references, and since such ranges of various components can provide the above-discussed advantages, it is believed that amended claim 4 is inventive and thus allowable.

Claim 5 is canceled in view of the inclusion of the subject matter of claim 5 in claim 4.

In the event there are further issues remaining in any respect the Examiner is respectfully requested to telephone attorney to reach agreement to expedite issuance of this application.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Since the present claims set forth the present invention patentably and distinctly, and are not taught by the cited art either taken alone or in combination, this amendment is believed to place this case in condition for allowance and the Examiner is respectfully requested to reconsider the matter, enter this amendment, and to allow all of the claims in this case.

Respectfully submitted
Shigeaki Yamanaka, et al
by: _____

MARTIN A. FARBER
Attorney for Applicants
Registered Representative
Registration No.: 22,345

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the Amendment Upon Final Rejection is being facsimile transmitted to the Patent Office on January 11, 2005.

Signed by Martin A. Farber

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866 United Nations Plaza
New York, NY 10017
Tel (212) 758-2878
Fax (212) 758-2913